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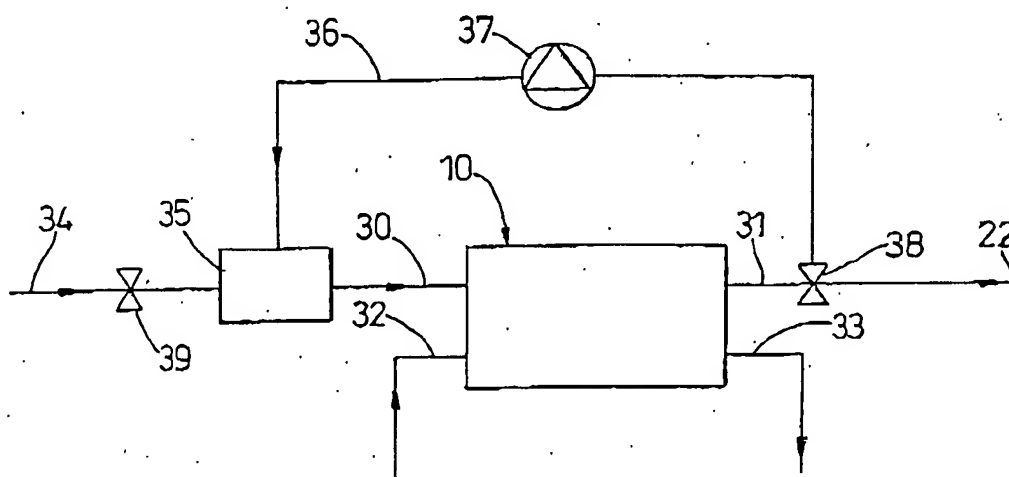
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(54) Title: FUEL CELL OXYGEN REMOVAL AND PRE-CONDITIONING SYSTEM



(57) Abstract: A fuel cell having an anode, a cathode and an ion exchange membrane is supplied by hydrogen fuel through an anode fuel delivery conduit. A recirculation loop is provided to recycle gases in the fuel delivery conduit to a mixing point where a controlled flow rate of fuel is supplied and mixed therewith. Any oxidant species remaining in the fuel delivery conduit are thereby combusted in a controlled manner to avoid damage to the fuel cell membrane-electrode assembly. Small quantities of oxidant may be deliberately introduced into the fuel delivery conduit to generate water vapour and heat to pre-condition the fuel delivered to the anode. Such preconditioning assists in hydration control of the membrane, and temperature control of the membrane-electrode assembly for optimum fuel cell performance.

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